

Coagulation disorders in premature infants – case report

VERICA MIŠANOVIĆ¹, SABINA TERZIĆ¹, EMINA VUKAS¹, SELMA DIZDAR¹, MIRZA HALIMIĆ¹, EDO HASANBEGOVIĆ¹, EDIN BEGIĆ²

¹ Pediatric Clinic, Clinical Center University of Sarajevo, Sarajevo, Bosnia and Herzegovina

² The Faculty of Medicine - Sarajevo Medical School of the Sarajevo School of Science and Technology University, Sarajevo, Bosnia and Herzegovina

Corresponding author:

Verica Mišanović

Pediatric Clinic, Clinical Center University of Sarajevo,
Bosnia and Herzegovina

E-mail: misanovicverica@gmail.com

ABSTRACT

Hemorrhagic disease of the newborn, with incidence 1% to 2% of newborn babies is often a serious problem and urgent condition in pediatric intensive care unit. Article describes a case of coagulation disorder in premature infant and the management of that case.

Keywords: newborn, hemorrhagic disease, coagulation disorder.

INTRODUCTION

Bleeding in the newborn is often a serious problem because of cardiovascular effects associated with a loss of blood and/or the damaging effects of bleeding on neonatal tissues, especially the brain. (1) Hemorrhagic disease of the newborn occurs in 1% to 2% of newborn babies. (1)

CASE REPORT

Article describes prematurely born, female baby in the first hour of life, body weight was 1410 grams, body length 46cm, APGAR 7, reactive. Pulmonary examination showed equally audibly superficial diffuse weakened vesicular breathing, heart action was rhythmic, tones were clear, with no murmurs. The skin was without pathological efflorescence. Assessment of gestational age by Ballard corresponded to 32 week of gestation. Chest x-ray showed radiological signs of a mild respiratory distress syndrome (RDS). (Figure 1) Continuous positive airway pressure FiO2 30% was included over two days, then O2 indirectly, and in day 4 without support of O2. Placing the umbilical venous catheter, infusion is included, then vitamin K injection

(dose 1 mg), and also double antibiotic treatment (Ampicillin, Gentamycin) that was excluded sixth day of hospitalization after arrival of blood cultures which were sterile (blood test: RBC 4.87x10¹²/L, Hb 174g/L, MCV 111fL, HtC 0.54L/L, WBC 9.9x10⁹/L, Plt 226x10⁹/L). On the second day, minimum enteral food intake by the child is started that could be tolerated, in the combination with probiotic and with partial parenteral nutrition (intralipid and amino acid infusions). Intralipid infusions were excluded on the 9th day. On the twelfth day prematurely born baby made repeated cessation of breathing, so the screening for infection was done (CRP was 112.0 mg/dL). Antibiotic (meropenem) was included, and Klebsiella pneumoniae biotype 18 was isolated in hemoculture, sensitive to given antibiotic. The fifth day of therapy, control CRP was done (it was 13.8 mg/dL), and hemoculture was sterile. The seventeenth day of hospitalization, when placing peripherally inserted central catheter, bleeding started at the injection site as well as on the sites of previous venipunctures (at that time laboratory results were as follows: RBC 3.92x10¹²/L, Hb 128g/L, Htc 0.38L/L, MCV 95fL, Plt 115x10⁹/L, WBC 39.8x10⁹/L). K vitamine was administered as well as dose of fresh frozen plasma (FFP) blood group "A" Rh(D) positive. In 06:00 h laboratory results were as follows: RBC 1.73 x 10¹²/L, Hb 59 g/L, Htc 0.17 L/L, MCV 92 fL, WBC 27.9 x 10⁹/L, Plt 67 x 10⁹/L. Activated partial thromboplastin time (aPTT) was immeasurable, international normalized ratio (INR) was 2.44, and fibrinogen 2.3. After administration of FFP and vitamin K aPTT was 152 seconds and INR was 1.26. Bolus crystalloid was administered in therapy, as well as colloid 5% human albumin, deplasmatic erythrocytes (DE) and another FFP. After administered therapy, bleeding did not stop,



Figure 1. X-ray finding – mild respiratory distress syndrome

so prothrombin complex concentrate was administered twice in the total dose of 100 IU considering that it was administered to premature born baby that had 1370 grams. In the evening of the same day the bleeding stopped completely. Large coagulogram was done and results were as follows: prothrombin time 0.93, INR 1.04, aPTT 34.20 seconds, thrombin time 20.1 seconds, fibrinogen 2.2g/L, Plt 278x10⁹/L. Due to anemia which is perceived as anemia of prematurity, the patient received one time dose of DE and the replacement therapy of preparations of iron was included. She was released 45 days after admission. Neurological examination was appropriate for age and her weight was 2100 grams.

DISCUSSION

The etiology of premature birth is in most cases unknown (in 50% of cases) (2) and it is higher in socially vulnerable populations than in more developed social environments. (3, 4) Prematurely born children have difficulties in extra-uterine adaptation and they have tendency to develop following hematological states - anemia,

hyperbilirubinemia, vitamin K deficiency, disseminated intravascular coagulation, and subcutaneous tissue hematoma, as well as problems with other organic systems, and metabolic disorders. (4, 5) Due to deficiency of humoral, cellular immune responses are more prone to developing infections. Bleeding in the newborn children may be manifested by signs of shock and anemia. They can show signs related to pressure from 'hidden' bleeding or bleeding from the gastrointestinal tract, respira-

tory system or skin, and requires urgent specialist processing as well as urgent multidisciplinary specialist treatment.

CONCLUSION

Management of diseases are promotion of cardiorespiratory stability, correction of underlying etiology and for a baby with bleeding, in addition to ensuring adequate vitamin K, many coagulation factor abnor-

malities may be corrected with intravenous administration of 10 to 15 mL/kg FFP. In situations where the aforementioned therapy did not provide expected results, it is necessary to use preparations that contain well-balanced vitamin K-dependent coagulation factors as well as C and S protein inhibitors, although there are still no scientific studies on the use of these preparations in prematurely born babies.

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